PLANT PROTECTION BULLETIN

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ROME, ITALY

FAO PLANT PROTECTION BULLETIN

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FAO Plant Protection Bulletin

Vol. I, No. 8 A Publication of the May 1953

World Reporting Service on Plant Diseases and Pests

Plant Disease Situation in the United States

Paul R. Miller

Bureau of Plant Industry, Soils and Agricultural Engineering,
United States Department of Agriculture

Black Root Rot of Cotton in Texas and New Mexico

The first report of black root rot, caused by *Thielaviopsis basicola* (Berk. & Br.) Ferraris, on cotton was from Arizona in 1939. In 1951 the disease was found again in the Southwest, in two fields in the upper Rio Grande Valley of Texas. During 1952 it was discovered in ten additional fields in Texas and New Mexico, and probably would have been found in others with a more complete survey. The area in which the disease was observed in 1952 extends for about 75 miles along the Rio Grande Valley of western Texas and New Mexico. All affected fields were planted to Pima 32, an American–Egyptian variety of long–staple cotton (*Gossypium barbadense*). The organism was also isolated from an Upland cotton plant (*G. hirsutum*) found in one of these fields.

Black root rot was invariably found on light, sandy soil (Anthony sandy loam) associated with root galling caused by the root knot nematode, *Meloidogyne* sp., previously known as *Heterodera marioni* (Cornu) Goodey. The extent of nematode root damage on diseased plants varied from an occasional gall to moderately severe galling. Black root rot was not found on the more common heavy alluvial soil (Gila clay) where the root knot nematode is very seldom found on cotton. The repeated association of the fungus and the nematode suggests more than a mere chance relationship.

In 1952 the typical above–ground symptoms of wilting and collapse of the leaves and young stem tissues were first observed in late June, when the plants were about 75 days old. The collapse was so rapid that the wilted leaves and young squares did not fall off and many affected plants resembled plants struck by lightning. In longitudinal section, crown and roots of an infected plant showed a limited amount of brownish flecking in the woody tissue without appreciable crown swelling. Bark on the main tap and lateral roots was normal in appearance externally. A light tan discoloration of the cambium of the diseased root and crown was noted. It is unusual to find such limited internal symptoms associated with the severe collapse and wilting of the leaves and succulent stem tissues. Apparently these early season symptoms have not been observed elsewhere.

Formation of lateral stems at the cotyledonary node usually followed in two or three weeks. This sprouting was not seen when the plants were attacked late in the season.

Late-season examination of diseased plants frequently revealed an internal discoloration of the stele and swelling of the crown. Most diseased plants late in the season are characterized by prominent reddish–brown lenticels, pronounced crown swelling, and a purplish–brown discoloration of the stele. As mentioned previously, the characteristic symptoms so common late in the season are seldom found associated with the collapse of the above–ground parts in June and July. Black, firm, dry rot of the cortex apparently caused by *Thielaviopsis* under field conditions was also observed. Woody tissues contiguous to

the diseased cortical tissue were purplish–brown in color, and in free–hand sections they contained numerous chlamydospores characteristic of the pathogen.

Black root rot appeared in most instances following an irrigation, when soil temperatures dropped and the available soil moisture was high. The disease was especially severe in low spots in fields where water stood for a considerable length of time. In most fields the infested areas were scattered and involved only a small portion of the over–all acreage. In two fields approximately one–third of the acreage was severely infested; undoubtedly some reduction in yield of seed cotton resulted. However, at present the disease does not appear to be a serious threat to the production of American–Egyptian cotton in New Mexico and Texas.

It seems evident that *Thielaviopsis* is indigenous to the area in which it has been found on cotton in New Mexico and Texas, as also in Arizona. The extension of its host range can possibly be attributed to two factors, namely, the increased acreage of American–Egyptian cotton and the awareness of its presence in the area.

Clover Root Nematode in California

In August 1951 an area of poor growth was observed in white clover (*Trifolium repens*) planted in the lawn of a private residence in Camarillo, California. In a circular spot approximately ten feet in diameter the clover showed yellowing and poor growth. A sample of soil and clover roots was found to be heavily infested with a cyst–forming species of *Heterodera*. Subsequent examination of surrounding properties showed infestations in two other lawns nearby.

Soil from the infested lawn was used in testing the host range of the nematode. Results agree in general with previous reports, *Sesbania* and carnation being the only new host records. No development of this nematode was obtained on sugar beets, which had been reported as very lightly infected. No males appeared in any of the tests, nor is an explanation available for the failure of the males to develop.

The population observed in California showed a distinctive yellow phase in the color of the female as it turned from white to brown, as described for the clover root nematode.

Measurements of larvae showed a total length of 0.480 – 0.542 mm. (average 0.517 mm.), with a spear length of 26–29 μ, agreeing with figures reported for the clover root nematode. No males were available for comparison. The larvae of the clover root nematode are distinctly longer than those of *H. schachtii*, which average 0.469 mm. in length.

The clover root nematode was first described as a variety of *H. schachtii* but in view of the greater length of the larvae, the yellow color phase found in the female and the differences in host range, many workers consider it to be distinct from *H. schachtii* and adopt the name *H. trifolii* Goffart, 1932. Further studies will probably disclose other morphological as well as biological differences.

A collection similar to this from Salt Lake City, Utah, is the only other record up to the present time of the presence of this species in this country. The nematode is also known to occur in Continental Europe and in England.

There is no conclusive evidence as to the origin of the infestations of this nematode found in California. The area at Camarillo had been planted to barley for many years although the soil was too poor for good crops. The area was subdivided for homes in 1948 and subsequent growth was volunteer barley, wild oats and Russian thistle. As homes were built many owners scraped off top soil and imported other soil, much of which came from Camarillo Heights, a high ridge nearby with a considerable native vegetation, such as lupine, vetch, etc. As yet the possibility of native infestations has not been investigated. The nematode apparently was not introduced in the clover seed since a portion of the original seed used in planting one of the infested lawns was available for examination. No nematodes were found in that portion. The original lot of seed at the nursery was traced to plantings in other areas, which were checked without any infestation being found.

The nematode appears to be very destructive to clover. On the basis of its host range it may represent a potentially serious pest in the production of clover as well as of other crops in California.

Apple Leaf-curling Midge, a New Pest in New Zealand

L. GORDON MORRISON

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THE apple leaf–curling midge, *Dasyneura mali* Kieff., is now an established pest of apples in New Zealand. This insect was originally described by J.J. Kieffer in 1904 and has been known to occur in France, Germany, Netherlands, Italy, the British Isles and the northeastern section of the United States. Its establishment in New Zealand has extended its geographic distribution to south of the equator.

Injury

The feeding of the larvae causes an inward rolling of the edges of the leaves on terminal branches and watersprouts of apple trees (Fig. 1). The infested leaves often show a reddish–brown, somewhat mottled coloring, cease to function properly and may drop prematurely. An infestation sufficiently severe to cause stunting of the trees has not been observed in New Zealand.

Fig. 1. *Terminal and older apple leaves showing inrolling caused by apple leaf-curling midge.*

Outbreaks in New Zealand

Prior to 1950 the apple leaf–curling midge had not been recorded in New Zealand. In January of that year, before the gazetting and enforcement of the new Plant Quarantine Regulations, a shipment of East Malling No. IX apple stocks was imported from Europe and planted in an Auckland nursery. Two months later these stocks were found to be infested with the apple leaf–curling midge. Soil treatment with naphthalene and foliage sprays with commercial preparations of parathion were applied. With the onset of winter the midge disappeared.

No appearance of the midge being apparent during the following year the nursery was permitted in May 1951 to dispose of its trees provided that when lifted they were shaken free of soil and then dipped in red oil. Trees were distributed throughout the North Island. Some trees in the shipment of January 1950 were destined for Palmerston North and it was in a nursery there that the midge was again found in February 1952. Immediately the movement of apple stocks from this and the Auckland nursery was restricted. Naphthalene being unobtainable it was replaced by DDT as a soil dressing at the rate of 1 lb. of 5 percent powder per 100 sq. yd. The parathion foliage spray was again used. It was noted in the Auckland nursery that those stocks which in winter had been lifted, cleaned of soil, dipped in red oil and planted in a clean area showed no sign of infestation.

By April 1952 the midge from the Auckland nursery had spread to an adjoining apple orchard. Parathion was found to be relatively ineffective and a change was made to a foliage spray using 1 lb. 50 percent DDT wettable powder per 100 gal. water. Midge activity again declined as winter approached.

At the commencement of the next season's growth the midge became abundant. By November 1952 it was found not only in the original Auckland nursery, but in neighbouring orchards and also on several properties in Palmerston North. As a result of information received at this time from the Massachusetts Agricultural Experiment Station the spray strength was increased to 2 lb. 50 percent DDT wettable powder in 100 gal. water. An application of this spray at pink bud, petal–fall or about one week later, plus one or two applications per season in the regular spray schedule, has been found satisfactory for controlling this pest in New England in the United States. It is too soon to estimate its effectiveness in New Zealand, but at present the apple leaf–curling midge is spreading, despite spraying at three weekly intervals.

Turnip Mosaic on Swedes in Eastern Canada

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SWEDES are grown extensively in limited areas in several provinces of Eastern Canada. They find a ready market in the large centres of population in the eastern United States and Canada. In recent years, sporadic outbreaks of mosaic have occurred almost annually in these provinces and the disease has become so prevalent in one seed-producing district in Digby County, Nova Scotia, that growing swedes for seed has frequently been unprofitable. However, when stecklings have been raised in isolated fields the crop has been relatively free from mosaic. In this district, wild radish (*Raphanus raphanistrum*) is a common weed and field observations indicate that it is often affected by mosaic.

Isolates obtained from swedes showing mosaic symptoms from l'Assomption, Quebec, and Kentville, Nova Scotia, were compared by G. H. Berkeley at St. Catharines, Ontario, with an isolate from swedes collected near Walkerton, Ontario, transfers of the virus being made by the juice-carborundum method. The symptoms produced on swede and certain other crucifers by all three original isolates were similar but not equally severe. However, when other hosts, including tobacco (*Nicotiana glutinosa*) and cultivated radish (*Raphanus sativus*), were inoculated, it was demonstrated that the Ontario isolate was a single virus identified as belonging to the turnip virus 1 group, whereas the Quebec and Nova Scotia isolates comprised two viruses. From the original Quebec isolate, a virus belonging to the turnip mosaic virus 1 group and a strain of cucumber mosaic virus were separated. The original Nova Scotia isolate contained a strain of turnip virus 1 and a virus which attacked radish, causing large chlorotic lesions followed by a systemic chlorotic mottle. Turnip virus 1 produces local lesions on tobacco and does not attack radish, whereas the new virus on radish does not attack tobacco. This latter virus has not yet been identified with any previously described. It is concluded that mosaic in swedes, as it occurs in Canada, may be caused by turnip virus 1 acting alone or in combination with other viruses.

The Olive Fly in the Mediterranean Region

C. LOGOTHETIS

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ON the initiative of the Government of Italy, FAO convened a meeting on the olive fly, *Dacus oleae* Rossi, in Florence, 16 to 21 March 1953. It was attended by delegates of France and her North African territories, Greece, Israel, Italy, Portugal, Spain, and Yugoslavia. Seventeen technical communications on various problems relating to the biology and control of this pest were presented. The present notes are aimed at summarizing briefly existing knowledge of these problems and the recommendations of the meeting.

Economic Importance

Olives and olive oil have been, for centuries, two of the basic foods in most Mediterranean countries, and rank as their most important exports. Spain, Italy, Greece and Portugal are the leading producing countries.

The olive tree has been grown in the Mediterranean region throughout known history and recently its cultivation has extended to Australia, India, South Africa and North and South America. The olive tree, which may live for many hundreds of years, has undoubtedly much influence on rural economy and must have played an important rôle in past civilizations of the Mediterranean countries. It is well adapted to the extremely dry summer months and the rocky hills and low mountains characteristic of many Mediterranean countries. Under such conditions, there is no other tree which equals the olive in productivity.

This very important fruit, however, has a major pest: the olive fly. If left uncontrolled, this Trypetid may, in some years and in most areas, infl ct heavy losses on the crop, which is estimated to represent a value of about six hundred million U. S. dollars annually in the Mediterranean region. Fortunately, it has not yet appeared in the Americas and Australia. Even with the application of various available methods of control, the average annual losses are estimated to be well over 25 percent. The losses are due to: (*a*) the premature dropping of the fruit; (*b*) the destruction of the pulp, consequently causing a reduction in the oil yield; (*c*) the reduction of marketing value of pickling olives; and (*d*) the increase of the acidity of the oil from the normal 1 to 2 percent to as high as 20 percent so that, if consumed unrefined, it is a great hazard to health.

Life History

The adult fly first attacks the young olives when they are the size of a pea. The time at which this stage is attained varies with variety and area, but in general it is in late May to early June. The fly lays its egg right below the fruit epidermis and each female may lay some 200 to 250 eggs, usually no more than one egg per fruit. It is not unusual to find as many as five to six eggs or larvae on each fruit, but these may be laid by several flies. The egg takes two to three days to hatch in the summer, and up to 19 days in the fall generation, and the young larva starts feeding and burrowing into the pulp. In the young fruit the larva soon reaches the pedicel and causes premature dropping of the fruit. When attacked later in the season, the fruit may remain suspended on the tree after the emergence of the fly. The larva completes its development in about two weeks and forms a puparium. Pupation takes place in the fruit either on the ground or while still hanging on the tree. There are from four to six generations each year. The larvae of the last generation overwinter in the soil to a depth of one to three inches and remain

there up to four to six months. They emerge as adults from the middle of March to the end of April, or even earlier in warmer climates. In North Africa the insect is said to reproduce continuously throughout the year in areas where there are always fruits left on the trees. In the summer, the adult lives from three to eight weeks, and the entire life cycle is completed in 35 to 40 days.

Ecology

One of the important characteristics of this insect is that it is not equally prevalent every year, the infestation being extremely heavy in some years and in others extremely light. Factors responsible for such extreme variation in prevalence are not yet adequately known, but all available reports indicate that the lesser degree of infestation in certain years cannot be attributed to the success of previous control operations. In some areas, such as North Africa, natural parasites are said to keep infestations at a very low level.

Very little is known of the ecology of this insect and only very recently has an attempt been made to study systematically the physical factors which affect the development of the insect, especially during winter months. As expected, soil temperature and moisture in winter have a direct effect on the survival of the larvae in the soil. The relative air humidity during the summer has long been known as a factor influencing adult fly populations. High air humidity has always been associated with high infestations, while the occurrence of very dry winds is in direct correlation with low infestations.

Recent studies in Israel have thrown some light on another factor affecting the seasonal variation of infestations. It was shown that the normal activity of adult flies requires a temperature of from 20° to 30° C. under daylight conditions. The longer the period during which this condition prevails, the greater the infestation.

Many observations have been recorded on the sudden appearance and disappearance of adult flies in olive groves, but no evidence is presented with respect to migration. Studies on this phase will be very useful in planning control operations and may explain, in part, the variation in infestation.

Control Measures

No satisfactory control methods against the olive fly have yet been developed and few of the countries affected have adopted any control measures whatever. Only one method, known as the Berlese method, has been practised heretofore but the reported results do not appear to be satisfactory in all areas and in all years. This method, which was improved and publicized by A. Berlese in the early thirties, involves the use of a poisoned bait, composed of sodium arsenite and molasses in aqueous solution. The bait is applied with a knapsack sprayer on a small portion of each tree, with the nozzle set to discharge the solution in a stream rather than in a fan shape. The flies are expected to be attracted to the molasses deposited in rather large water drops on trees.

A modification of this method, in which pure molasses is replaced by unrefined molasses or other sweet substances, has been reported to be more efficient. Each application is timed to coincide with the appearance of the adults of each brood, indicated by captures in glass–traps suspended on the trees at regular distances. This method, however, still seems to be far from satisfactory.

The trap was used in the past as a means of direct control, but with unsatisfactory results. It has been recently demonstrated that the dimensions of the entrance for the flies, as well as the concentration of the bait solution in the glass–trap, are very important factors. A Spanish model of glass–trap, with an entrance 15 mm. in diameter, has been used for the last few years with a two percent solution of ammonium phosphate as the bait. The results appeared to be better than those obtained by other methods, but still not quite satisfactory.

Coordination of Future Investigations

Various problems concerning the biology, ecology and control of the olive fly were considered at the Florence meeting. Realizing the inadequacy of present knowledge of these aspects, the meeting recommended that biological investigations be continued, especially on the overwintering of the insect.

The leading question to be solved is what happens to the insect between the time it emerges as adult in the spring, from mid–February to not later than the end of April, and the time it attacks the new crop about the middle of June.

To find a more efficient method of combating this fly, the meeting recommended that the interested Governments undertake a series of experiments in accordance with a preconceived scheme, for comparison and evaluation of the existing control measures and their combinations, and the efficacy of the more recently developed insecticides both as partial treatment and in cover–spray application. Reports given by various delegates at the meeting indicate that preliminary tests with newer insecticides, applied as cover–sprays, may be expected to give satisfactory results, but the cost will be considerably higher. The residual effects of these insecticides on the oil and the fruit should also be studied. Soil treatments are also to be included.

It is hoped that these recommendations will initiate a coordinated program for the study of these problems in a systematic way. The continuity and coordination of future investigations are envisaged in the proposal for the formation of a working party, to be composed of technical officers of the countries interested, with which FAO will maintain close liaison.

Outbreaks and New Records

Malaya

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Occurrence of Onion Leaf Miner

SINCE the discovery of the onion leaf miner, *Dizygomyza cepae* Hering, in Singapore, it has been suspected that it may also occur in Johore, one of the nine Malay States situated in the south extremity of the Peninsula. Material collected in Johore and just received by the Commonwealth Institute of Entomology was identified as *D. cepae*, thus confirming that this pest does appear in Johore as well as in Singapore Island.

New Zealand

G. A. H. HELSON

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Late Blight of Potato and Tomato

Weather conditions this summer, being cold and wet with intervening warm spells, have been favourable to the development of late blight, caused by *Phytophthora infestans* (Mont.) D By. The epidemic on potato appeared first in Auckland last September and October, then in Wellington district in December and January, and later in the South Island where at this writing in mid-March the disease is still prevalent and severe in the potato growing areas. In Canterbury, where the weather has been wetter and colder than usual, the epidemic is said to be the second worst in twenty years. At present it is not possible to estimate the loss as tubers have not been dug, but loss of leaf area due to the fungus is bad enough to give an indication that overall damage will be severe.

The abnormal weather conditions and the prevalence of the tomato strain of *P. infestans* have together been responsible for a loss of about 40 percent of the tomato crop in Hawkes Bay. Other districts were less seriously affected. Stems of the tomato plants were attacked by the disease more frequently than the leaves, an unusual type of infection.

Control of Looper Caterpillar

The looper caterpillar, *Selidosema suavis* Butler, which was reported previously in this Bulletin as causing serious damage to *Pinus radiata*, has been the subject of a control campaign, carried out by the New Zealand Forest Service. Out of two blocks of *P. radiata* in Canterbury, 7,000 acres were selected and sprayed with DDT from the air at the rate of 0.8 lb. of the para–para isomer per gallon per acre. Three aeroplanes were used and the cost amounted to £1 sterling per acre. An area was left unsprayed as a control, one of the aims being to find out whether the number of the caterpillars in the unsprayed area would be reduced by natural predators and parasites as effectively as by DDT in the sprayed area.

Interception of Snapdragon Rust in Imports

Puccinia antirrhini Diet. & Holw., the cause of a serious rust disease of *Antirrhinum* not present in New Zealand, has been intercepted in packages of imported flower seeds. At present experiments are being carried out to find an effective method of seed treatment for destroying this fungus.

New Records

Verticillium wilt of hop, *Verticillium dahliae* Kleb., which has a wide host range in New Zealand, has, for the first time, attacked hops. The wilt is now restricted only to a hop garden of 4 acres in Nelson, and it is thought that such a limited area might be effectively treated with a soil fumigant such as DD plus chloropicrin. The outbreak of this disease, however, is regarded seriously because Verticillium wilt is one of the most harmful diseases which affect hop gardens in England.

Coffee-bean weevil. This cosmopolitan weevil, *Araecerus fasciculatus* de G., not hitherto recorded in this country, has been found in stored products.

Nyasaland, Rhodesia, Zanzibar and Mauritius

S. P. WILTSHIRE

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New Outbreaks of Maize Rust

Maize rust, *Puccinia polysora* Underw., has been reported from Nyasaland, Southern Rhodesia, Northern Rhodesia, Zanzibar and Mauritius. These records, together with its occurrence in Uganda, reported previously in this Bulletin, extend the geographic distribution of this disease into East and South Africa and islands in the Indian Ocean. For its known distribution prior to 1 November 1951, reference may be made to the *Distribution Maps of Plant Diseases, No. 237,* issued by the Commonwealth Mycological Institute.

United States

Bureau of Entomology and Plant Quarantine, United States Department of Agriculture

Occurrence of Pear Psylla in California

Pear psylla (*Psylla pyricola* Foerst.) was found for the first time in the State of California, 4 May 1953. Three infestations were found on this date: two in Siskiyou County and one in Del Norte County adjacent to the Oregon Border. This finding was anticipated as the insect has been moving southward rather rapidly in Oregon. Fortunately, the commercial pear producing areas of California are partially protected against immediate infestation by a large area of mountainous terrain in which pear is practically non-existent.

Pear psylla, an insect of European origin, has been known in the eastern United States for over one hundred years, but it was not found west of the Rocky Mountains until 1939. In addition to the newly infested area of California, this insect is known to occur in areas of Idaho, Washington and Oregon in the western states.

Blackberry Whitefly Spreads Westward

Blackberry whitefly, *Trialeurodes ruborum* (Cockerell), was not known to occur in the State of California previous to its collection in Kern County on 13 March 1953. However,

a survey shows the insect to be rather widespread in Central California.

This insect is indigenous to North America and was recorded previously only from the southeastern states, including Maryland, Virginia, Florida and Louisiana. Its hosts include blackberry, other species of *Rubus*, and *Fragaria* sp.

INTERNATIONAL BULLETIN OF PLANT PROTECTION

This monthly periodical was instituted in 1927 by the former International Institute of Agriculture in Rome, on the recommendation of its Eighth General Assembly in 1926. It was continuously published since then until 1946.

In the twenty years of its publication it had accumulated, through official correspondents in various countries, a great amount of useful information, covering the discoveries and current events in phytopathology and entomology, questions relating to plant protection, legislative and administrative measures, current bibliographies and other items of interest. It appeared in five languages: English, French, Spanish, Italian and German.

Throughout the twenty volumes, this periodical was ably edited by Prof. G. Trinchieri, whose service and devotion in advancing international relationship in plant protection deserves the highest merit. As Chief of the Plant Protection Service of the former International Institute of Agriculture, he was also responsible for many other contributions in the field of plant protection including the formulation of the *Convention internationale pour la protection des végétaux* of 1929, which is the forerunner of the International Plant Protection Convention approved by the FAO Conference in 1951.

Volumes of the International Bulletin of Plant Protection in all the five language editions are still available and may be obtained from the Documents Sales Service, FAO.

PLANT QUARANTINE ANNOUNCEMENTS

India

Notification No. F. 6–1/51 issued by the Ministry of Food and Agriculture, dated 25 March 1953, amends the rules regulating the import of potatoes. Previously potatoes imported from Italy were required to be accompanied only by a certificate of freedom from diseases granted by a Royal Phytopathological Institute in Italy, while those from other countries must be accompanied by an official certificate indicating: (*i*) that no case of wart disease, golden nematode and Colorado beetle has occurred during the preceding twelve months within five miles of the growing field; (*ii*) that the crop has been inspected and that the degree of freedom from virus diseases was sufficiently high; and (*iii*) that on examination of samples the potatoes have been found healthy and free from insect pests or fungus destructive to crops. The present Notification abolishes this exceptional treatment for potatoes from Italy, which will be subject to the same control as other countries.

Netherlands

San José Scale Decree, published in the State Gazette No. 65, 2 April 1953, replaces the Decree of 30 July 1951 on the same subject. The modifications effected are as follows:

(*a*) Plants of the genera *Acer, Cornus, Cotoneaster, Crataegus, Cydonia, Fagus, Juglans, Ligustrum, Malus, Populus, Prunus, Pyrus, Ribes, Rosa, Salix, Sorbus, Spiraea, Syringa, Tilia* and *Ulmus* must be fumigated with hydrocyanic acid, after arrival in the Netherlands.

(*b*) The import and transit of living woody plants are prohibited during the period from 1 April to 1 October, but conifers and all plants of Ericaceae are now excepted.

(*c*) The imported woody plants may be re-exported only after two full growing seasons in the Netherlands.

New Zealand

Notice No. Ag. 5395 dated 2 March 1953, published in the New Zealand Gazette No. 13, 12 March 1953, authorizes the introduction into New Zealand without a permit of the following nursery stock:

All species of ferns (Filicinae)
All species of hibiscus (*Hibiscus* spp.)
All species of gerberas (*Gerbera* spp.)

United Kingdom

1. *The Importation of Plants (General Licence) Order, 1953*

This Order, which came into operation 1 April 1953, revokes and consolidates two General Licences (I.P. Gen. 2/1949 and 17/1952), modifying the requirements of the Importation of Plants Orders, 1947 to 1953 on the importation of certain produce from Europe, the United States of America or Canada. The kinds of produce affected by this Order are the same as those in the aforesaid General Licences, but alterations are made in the Form B certificate, set out in the Third Schedule to the Importation of Plants Order of 1947, to accompany the produce.

The Importation of Plants (Exemption) (Northern Ireland) Order, 1953, deals with the same subject.

2. *The Importation of Plants from Belgium, France, and the Netherlands (General Licence) Order, 1953*

This Order, which came into operation 1 April 1953, modifies the phytopathological requirements of the Importation of Plants Orders, 1947 to 1953 for certain produce grown in Belgium, France and the Netherlands, and imported into England or Wales during specified periods of the year 1953. The produce affected includes:

Plants with bare roots from Belgium and the Netherlands;
Plants with balled roots from the Boskoop district of the Netherlands;
Cauliflowers and carrots from the Netherlands, Belgium (Louvain and Malines districts), and France (Barfleur, Caen, Creances, Lannion, Nantes, Perros-Guirec, Rennes and Saint Pol-de-Léon districts);
All other raw vegetables from the Netherlands;
Potatoes from European France.

During these specified periods, modified certificates as set out in this Order will replace the certificates required by the Importation of Plants Orders, 1947 to 1953 and the Importation of Plants (General Licence) Order, 1953.

The Importation of Plants from Belgium, France and the Netherlands (Exemption) (Northern Ireland) Order, 1953, deals with the same subject.

3. *The Importation of Raw Cherries Order, 1953.*

This Order, which came into operation 19 May 1953, imposes restrictions on raw cherries imported from Europe for the year 1953, in order to prevent the introduction of the cherry fruit fly. A certificate of origin is required for each consignment from the following European countries during specific periods:

19–31 May	Spain, Portugal, France, Italy (excluding the Region of Emilia and the Province of Verona).
19 May–9 June	Austria, Bulgaria, Hungary, Yugoslavia, Switzerland.
19 May–26 June	Czechoslovakia, Germany.

After the periods specified above, each consignment originating in France, Switzerland and Germany should be accompanied by a certificate issued by an officer of the Phytopathological Service in the country of origin, in the forms set out in the Order. Consignments originating in other European countries shall not be permitted entry.

NEWS AND NOTES

The Desert Locust Plague

The following countries were known to be infested by Desert Locust swarms or hoppers during February 1953. Newly invaded territories are indicated by asterisks.

India	British Somaliland
Pakistan	Ethiopia
Iran	Sudan
Iraq	* Egypt
Jordan	Kenya
* Israel	Uganda
Oman	Tanganyika
Saudi Arabia	Chad Territory
Socotra	French Niger
	Libya

Amman Desert Locust Conference

The Government of Jordan called a conference at Amman, 14–16 March 1953, to discuss emergency measures to be taken against heavy breeding in northern Saudi Arabia and southern Jordan. The following were represented: Iraq, Jordan, Lebanon, Saudi Arabia, Syria, Turkey, United Kingdom, United States and FAO. It was agreed that the Jordan anti-locust organization should be reinforced by contributions of insecticides, equipment and personnel from Lebanon, Syria, Turkey and FAO, and it was recommended that such units and others from Iraq should extend their operations into northern Saudi Arabia.

FAO Conference on Wheat and Barley Breeding in the Near East

The Second Conference on Wheat and Barley Breeding in the Near East, convened by FAO in Cairo, 13–18 April 1953, was attended by delegates from Egypt, Iran, Iraq, Jordan, Lebanon, Pakistan, Syria, Turkey and Cyprus.

After considering the reports presented by delegates on the organization and progress of wheat and barley breeding programs in the participating countries, the Conference re-affirmed its belief that by making the fullest possible use of available facilities and technical personnel, and exchanging information and breeding material through a comprehensive, well-balanced plan for regional cooperation, accelerated progress in the development and utilization of improved varieties of wheat and barley in the region would be made. Such regional cooperation could best be achieved through the Committee on Wheat and Barley Breeding in the Near East, as recommended by the First Conference in 1952.

During the Conference the major breeding problems involved in wheat and barley production in the region were outlined, with emphasis on resistance to rusts, smuts and other diseases. It was agreed that co-operative uniform wheat and barley nurseries should proceed on essentially the same lines as in the past season. The total number of nurseries for wheat rusts, wheat bunt and barley to be established in the eight participating countries for the 1953–54 season will be over eighty.

Identification of physiologic races of wheat rusts has been intensively carried out for several years in the Rust Laboratory of the Egyptian Ministry of Agriculture in Dokki, Cairo, which has generously offered to identify collections of rusts from other countries in the Near East. Turkey has recently also initiated such studies.

The Conference considered that more adequate facilities for pathological investigations are needed in the region, and expressed the hope that the Governments of Egypt and Turkey would explore all possibilities of improving their laboratory and greenhouse facilities for such work as soon as possible. It was reported that facilities for pathological investigations are also being established in Pakistan. Rust research laboratories in these three countries, each being located in a different section of the Near East, will, when properly staffed, serve the immediate needs of the region. However, it was recognized that as breeding programs develop further in the other countries it may be desirable to establish rust laboratories to serve them.

European Plant Protection Organization

The third meeting of the Council of the European Plant Protection Organization (EPPO) was held on 15 April 1953, and was attended by representatives of all member Governments except Greece and Spain. Sweden, not yet a member, was represented by an observer, who announced the intention of his Government to join EPPO in the near future. This will bring the total membership of EPPO to twenty. A statement was made by the French delegate to the effect that the Governments of Morocco, and possibly Tunis, may decide to become members.

On the financial side, the United Kingdom and Federal German Governments have voluntarily decided to increase their subscriptions, and in-

creases are also under consideration by Denmark and Italy.

The main technical meetings to be convened in 1953 include international conferences on muskrat control (Munich, 7–8 June) and the fall webworm (Vienna, probably in October), and a Working Party on insect pests of stored foodstuffs (Brussels, 30 June – 3 July). Early in 1954 it is proposed to convene a conference of specialists to consider the progress and coordination of investigations concerned with the control of Mediterranean fruit fly (*Ceratitis capitata*). This meeting will be held in Algiers, in collaboration with FAO, and may possibly consider also the olive fly (*Dacus oleae*) on which FAO convened a successful conference in Florence last March.

Among other matters before the Council was the Progress Report for 1952. This was approved, and will shortly be published. Two vacancies on the Executive Committee, caused by the retirement of the representatives of the United Kingdom and of the Federal German Republic, will be filled by the Governments of Austria and the Netherlands.

On the question of biological control in Europe, the Council considered the recommendations of a conference convened by EPPO at Jouy-en-Josas, near Versailles, on 17 March 1953. Two out of the three recommendations were accepted by the Council, namely:

(*a*) that Governments should be recommended to take legal powers, if they were not already possessed of them and felt them to be required, to prevent if necessary the deliberate introduction and breeding in their countries of extra-European parasites or predators, including micro-organisms, for the control of plant pests;

(*b*) that Governments should be informed that EPPO would be prepared to convene meetings of appropriate specialists to consider the desirability or otherwise of introducing specified parasites, as already done in the case of *Hyphantria cunea*.

The third recommendation concerned the question of the coordination of work on biological control (including insect identification) in Europe, and it was stated in the conference report that the International Commission on Biological Control had agreed with the European Committee on Agricultural Zoology on the establishment of a Joint Biological Control Group for the coordination of work in Europe. The Council took note of this agreement and will watch its development.

At various times EPPO Working Parties have been faced with the problems of seed-borne diseases, and in one report it was recommended that the matter be discussed with the International Seed Testing Association. EPPO will be represented at the triennial meeting of the Association to be held in Dublin in May 1953, when it is hoped that agreement may be reached on the question of testing seeds for health and the use of health certificates which would not conflict with the proposals incorporated in the International Plant Protection Convention.

It has been decided not to print this year the usual annual report on the incidence of Colorado beetle in the various countries of Europe. The national reports are distributed as a part of the European Reporting Service. In addition a scientific appraisement of the position of the pest in 1952 in relation to earlier years is being prepared, and it is hoped that this will be published in the near future.

EPPO has prepared a colour plate on the Japanese beetle, *Popillia japonica*, showing the difference between this insect and *Phyllopertha horticola*, which closely resembles it in size and appearance but is widespread in Europe and relatively harmless. Specimens of this plate have been widely distributed and several thousands have been supplied to countries ordering them. The price is 25 francs per copy. Orders should be sent to the Secretariat of EPPO, 14 rue Cardinal Mercier, Paris IX.

Third South American Botanical Congress

It was reported last November in this Bulletin that the Third South American Botanical Congress was scheduled to take place in January 1953, as indicated in its Communication No. 1. The Congress, however, was postponed and so far no other date has been announced.

Roma – Tipografia del Senato del dott. Giovanni Bardi

CEREAL BREEDING PROCEDURES

This recently published FAO Development Paper covers the whole field from the hybridization of the parent plants until a new variety is in commercial production. Methods of growing hybrid populations, systems of testing and recording of results, variety purification and increase of pure seed, as well as the analysis of data, are treated in detail. Various types of nurseries are described for the breeding of varieties resistant to plant diseases and insect pests, and tolerant to certain climatic factors such as frost.

Special features of the publication are the sixteen appendices which graphically illustrate planting plans, plot arrangements, the statistical progress of a cross, variety purification and other features of a cereal breeding program. The complexity involved in modern plant breeding methods and the consequent necessity of systematizing the procedures are clearly and impressively indicated. 122 pages, $1.25; 6/3.

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